

U.S. Serial No. 10/623,130
Amendment
Response to OA dated March 9, 2005

Atty. Docket No. 740165-353

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Please amend the claims as follows:

1. (Currently Amended): A webbing retractor for an elongated, ~~strip-shaped~~ webbing belt used for application to a body of a vehicle occupant, the webbing retractor comprising:

a take-up shaft for taking the webbing belt up around itself, ~~which the~~ take-up shaft [is] being rotatably held, and to which one end of the webbing belt is anchored;

an input gear connected to the take-up shaft, a plurality of teeth being formed along a periphery of the input gear at uniform intervals;

a prime mover rotating body receiving driving force from a drive source, and rotating;
and

a plurality of connecting members mounted at uniform angular distances around said input gear for transmitting rotation of the prime mover rotating body to the input gear, ~~which said plurality of~~ connecting members ~~rotate~~ rotating around the input gear interlockingly with the rotation of the prime mover rotating body, and each of which ~~connecting members~~ has a meshing portion that is capable of contacting and moving away from the input gear, and in a state in which at least one meshing portion contacts the input gear so as to engage with any of the teeth of the input gear, the rotation of the prime mover rotating body is transmitted to the input gear,

wherein, in [the] a state in which at least two of said uniformly angularly spaced connecting members contact the input gear, a distance, along a direction of rotation of the input gear, between two meshing portions of the at least two [of] connecting members is substantially different than a number which is [a] an integer multiple of a pitch of the plurality of teeth such that one of said at least two connecting members reliably meshes with said plurality of teeth.

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2. (Original): The webbing retractor of claim 1, wherein, when the prime mover rotating body is driven and rotated at greater than a predetermined speed, the plurality of connecting members are moved such that the meshing portions contact the input gear.

3. (Original): The webbing retractor of claim 1, wherein the input gear has an odd number of teeth, and at least two of the meshing portions are disposed so as to be positioned so as to oppose one another across the input gear, at an outer side of the input gear.

4. (Original): The webbing retractor of claim 1, wherein the prime mover rotating body is pivotally supported so as to be coaxial with the input gear and so as to be able to rotate relative to the input gear.

5. (Original): The webbing retractor of claim 1, wherein the plurality of connecting members are held at the prime mover rotating body so as to be rotatable, and when the prime mover rotating body is driven and rotated at greater than a predetermined speed, the plurality of connecting members rotate in a direction of contacting the input gear.

6. (Original): The webbing retractor of claim 1, further comprising a rotating disc body which is held so as to be coaxial with the prime mover rotating body and so as to be able to rotate relative to the prime mover rotating body, and the rotating disc body has a mechanism which, when the prime mover rotating body is driven and rotated at greater than a predetermined speed, rotates relative to the prime mover rotating body and rotates the plurality of connecting members in a direction of contacting the input gear.

7. (Original): The webbing retractor of claim 6, further comprising a braking mechanism, and when the prime mover rotating body is driven and rotated at greater than a predetermined speed, the braking mechanism brakes the rotating disc body and causes relative rotation of the rotating disc body.

8. (Original): The webbing retractor of claim 1, wherein the prime mover rotating body has an external gear which is ring-shaped, is connected to the drive source, and

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has external teeth for enabling the external gear to be rotated; a base portion which holds the plurality of connecting members, and which is pivotally supported so as to be coaxial with the input gear and so as to be able to rotate relative to the input gear; and at least one torque limiter which is provided between the external gear and the base portion, so as to be able to transmit torque of a predetermined range from the external gear to the base portion.

9. (Original): The webbing retractor of claim 1, further comprising a control unit controlling operation of the drive source, and when a rate of change in deceleration at a time when a vehicle decelerates is greater than or equal to a predetermined value, the control unit effects control so as to cause the drive source to operate.

10. (Original): The webbing retractor of claim 1, further comprising a control unit controlling operation of the drive source, and when a distance to an obstacle which is positioned ahead of a vehicle is less than a predetermined value, the control unit effects control so as to cause the drive source to operate.

11. (Currently Amended): A webbing retractor for an elongated, strip-shaped webbing belt used for application to a body of a vehicle occupant, the webbing retractor comprising:

a take-up shaft for taking the webbing belt up around itself, which take-up shaft is rotatably held, and to which one end of the webbing belt is anchored;

an input gear connected to the take-up shaft, a plurality of teeth being formed along a periphery of the input gear at uniform intervals;

a prime mover rotating body receiving driving force from a drive source, and rotating; and

a plurality of connecting members mounted at uniform angular distances around said input gear for transmitting rotation of the prime mover rotating body to the input gear, ~~which~~ said plurality of connecting members rotate rotating around the input gear interlockingly with the rotation of the prime mover rotating body, and each of which ~~connecting members~~ has a meshing portion that is capable of contacting and moving away from the input gear, and in a state in which at least one meshing portion contacts the input gear so as to engage with any of

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the teeth of the input gear, the rotation of the prime mover rotating body is transmitted to the input gear,

wherein ~~relative positions of at least two of the connecting members are determined~~ said input gear has an odd number of teeth such that, when at least one of the meshing portions of a connecting member abuts [an] ~~a addendum of the tooth of the input gear~~, the meshing portion of at least another one of the connecting members ~~abuts a portion of the input gear other than addenda of~~ does not abut a tooth of the input gear so that at least one of said plurality of connecting members reliably meshes with said teeth.

12. (Original): The webbing retractor of claim 11, wherein, when the prime mover rotating body is driven and rotated at greater than a predetermined speed, the plurality of connecting members are moved such that the meshing portions contact the input gear.

13. (Currently Amended): The webbing retractor of claim 11, wherein ~~the input gear has an odd number of teeth, and~~ at least two of the meshing portions are disposed so as to be positioned so as to oppose one another across the input gear, at an outer side of the input gear.

14. (Original): The webbing retractor of claim 11, wherein the prime mover rotating body is pivotally supported so as to be coaxial with the input gear and so as to be able to rotate relative to the input gear.

15. (Original): The webbing retractor of claim 11, wherein the plurality of connecting members are held at the prime mover rotating body so as to be rotatable, and when the prime mover rotating body is driven and rotated at greater than a predetermined speed, the plurality of connecting members rotate in a direction of contacting the input gear.

16. (Original): The webbing retractor of claim 11, further comprising a rotating disc body which is held so as to be coaxial with the prime mover rotating body and so as to be able to rotate relative to the prime mover rotating body, and the rotating disc body has a mechanism which, when the prime mover rotating body is driven and rotated at greater

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than a predetermined speed, rotates relative to the prime mover rotating body and rotates the plurality of connecting members in a direction of contacting the input gear.

17. (Original): The webbing retractor of claim 16, further comprising a braking mechanism, and when the prime mover rotating body is driven and rotated at greater than a predetermined speed, the braking mechanism brakes the rotating disc body and causes relative rotation of the rotating disc body.

18. (Original): The webbing retractor of claim 11, wherein the prime mover rotating body has an external gear which is ring-shaped, is connected to the drive source, and has external teeth for enabling the external gear to be rotated; a base portion which holds the plurality of connecting members, and which is pivotally supported so as to be coaxial with the input gear and so as to be able to rotate relative to the input gear; and at least one torque limiter which is provided between the external gear and the base portion, so as to be able to transmit torque of a predetermined range from the external gear to the base portion.

19. (Original): The webbing retractor of claim 11, further comprising a control unit controlling operation of the drive source, and when a rate of change in deceleration at a time when a vehicle decelerates is greater than or equal to a predetermined value, the control unit effects control so as to cause the drive source to operate.

20. (Original): The webbing retractor of claim 11, further comprising a control unit controlling operation of the drive source, and when a distance to an obstacle which is positioned ahead of a vehicle is less than a predetermined value, the control unit effects control so as to cause the drive source to operate.

21. (Currently Amended): A webbing retractor comprising:
a take-up shaft, and a proximal end side of a webbing belt, which is elongated and strip-shaped and which is applied to a body of a vehicle occupant so as to restrain the body of the vehicle occupant, is anchored to the take-up shaft, and due to the take-up shaft rotating in a take-up direction which is one direction around an axis of the take-up shaft, the take-up

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shaft takes-up the webbing belt substantially in a form of a roll around an outer peripheral portion of the take-up shaft, and due to the webbing belt being pulled-out toward a distal end side of the webbing belt, the take-up shaft rotates in a pull-out direction which is opposite to the take-up direction;

an input gear mechanically connected to the take-up shaft and rotating the take-up shaft by rotation of the input gear, ~~a plurality~~ an odd number of teeth being formed at uniform intervals around an axis of the input gear;

a prime mover rotating body mechanically connected one of directly and indirectly to a drive source, and receiving driving force from the drive source and rotating; and

a plurality of connecting members mounted at uniform angular distances around said input gear which, interlockingly with rotation of the prime mover rotating body, rotate around the axis of the input gear, and the connecting members can move so as to approach and move away from the teeth of the input gear, and due to the connecting members moving so as to approach the teeth, the connecting members ~~mesh with~~ contact the input gear and transmit the rotation of the prime mover rotating body to the input gear, and in a state in which the connecting members are meshed with the input gear, ~~an interval between respective meshing portions around the axis~~ a distance along a direction of rotation of the input gear between two meshing portions is ~~an interval which is a sum of~~ substantially different than a number which is an integer multiple of a pitch of the plurality of teeth ~~and a number which is less than the pitch~~ such that at least one of said plurality of connecting members reliably meshes with said teeth.

22. (Original): The webbing retractor of claim 21, wherein the prime mover rotating body has a substantially ring-shaped external gear which is pivotally supported at the take-up shaft so as to be coaxial with the take-up shaft and so as to be able to rotate relative to the take-up shaft, and a plurality of external teeth are formed at an outer peripheral portion of the external gear at uniform intervals, and the external gear is connected one of directly and indirectly to a drive gear which rotates by driving force of the drive source, and the input gear has a shaft portion which is provided at an inner side of the external gear, and which is connected coaxially and integrally with the take-up shaft, and the teeth are formed at an outer peripheral portion of the shaft portion at predetermined intervals, and the external gear

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supports the connecting members such that the connecting members can move so as to approach and move away from the input gear, between the external gear and the input gear along a radial direction of the external gear.

23. The webbing retractor of claim 21, wherein the connecting members move so as to approach the input gear and mesh with the input gear in a case in which the prime mover rotating body rotates in a direction of rotating the take-up shaft in the take-up direction in a state in which the connecting members mesh with the input gear.

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